

CHARGE NUMBER: Various
PROGRAM TITLE: Analytical Investigations
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I. SMOKE CONDENSATE STUDIES (6908)

A limited study of the chemical composition of whole smoke condensate has been initiated at the request of Mr. W. F. Kuhn. Smoke condensate from a series of twelve cigarette types will be analyzed for total nitrogen, nicotine, phenols, and pH. Initial results on condensate from Kentucky Reference 1R1 cigarettes showed excellent precision. The RSD at the 2 σ level is $\pm 4\%$ for phenols, $\pm 5\%$ for total nitrogen, $\pm 2\%$ for nicotine and $\pm 11\%$ for pH (H^+ ion concentration).

II. SORBIC ACID IN RCB

The sorbic acid AutoAnalyzer channel has been interfaced with the computer in order to facilitate the analysis of the extremely heavy load of samples.

III. SULFIDES IN GAS PHASE

Work has begun on a colorimetric AutoAnalyzer method for the determination of sulfides in gas phase. The ultimate goal is to incorporate this analysis into the puff-by-puff gas phase analysis as a fifth channel.

IV. Methods were developed, in conjunction with Fabriques de Tabac Reunies SA and the CORESTA sub-committee, for the determinations of various pesticide residues in tobacco. These include γ -BHC, Heptachlor, Aldrin, Dieldrin, p,p'-DDE, o,p'- and p,p'-TDE, and o,p'- and p,p'-DDT. The pesticide residues cover the concentration range down to 0.02 ppm.

V. A number of the components of the gas phase of cigarette smoke were identified using GC/MS. Using this technique, the identities of several of the multi-component GC peaks were determined.

VI. Mainstream puff-by-puff TPM, nicotine and water delivery of Marlboro Monitor cigarettes has been measured near the char-line and compared to that obtained at the end of the rod. From this data, the amount of these components absorbed on the rod can be calculated.

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